Bacteria → Gm+ → Pleomorphic → Corynebacterium

* Gm+ | Irregular-shaped | No spores | Facultative Anaerobe | Non-motile
* Opportunistic Infection | Normal flora of skin, UR, GI, Urogenital

**C. diphtheriae**

* 4 biotypes (gravis + mitis → can acquire prophage that encodes toxin)
* Epidemiology: Oral/Resp droplets | Close physical contact | Fomites (rarely)
* (primarily pediatric) (common in tropical countries)
  + Endemic in Asia > Africa > South America
* Clinical Implications
  + Respiratory diphtheria
    - Gradual onset of mild fever | Sore throat | Difficulty swallowing | Loss of appetite | Hoarseness
    - Presence of a membrane appearing within 2-3 days of illness
      * Firm, fleshy, grey, adherent
    - “Bull-neck” appearance
    - System complications (if disseminated) → what people die from
* Diphteria Toxin (Binary Toxin)
  + β – binds heparin-binding epidermal growth factor → form pore
  + α – Inactivates elongation factor 2 → terminates all protein synthesis → kills tissue
  + Absorbed into mucous membrane
  + Invade + Establish Epithelial Layers
  + Toxin encoded by lysogenic bacteriophage
* Diagnosis
  + Clinically (b/c need treatment ASAP)
    - Non-vaccinated or visit to endemic area
    - Pharyngeal characteristics
  + Assay for diphtheria toxin via PCR
  + Can grow in selective media
    - Cysteine-tellurite blood agar (toxic to other bacteria + diphtheria changes its color)
    - Colisitin-Nalidixic agar
* Treatment
  + Antitoxin (Earlier is better)
  + Ensure clear airway
  + Admin antibiotic to clear bacteria
  + Antimicrobial prophylaxis if close-contact
  + Vaccine
    - DTaP – Combined against diphtheria, tetanus, + pertussis | 4 doses
    - Tdap – Collection of tetanus, reduced diphteris + reduced pertussis | Booster 10 yrs

**C. jeikeium**

* Opportunistic | 40% of patients in hospital have on skin | Very resistant to Antibiotics

**C. urealyticum**

* Uncommon | Strong urease produced → Caliculi or renal stones | Resistance to most antibiotics

**C. amycolatum**

* Opportunistic | Resistant to many antibiotics

**C. ulcerans / C. pseudotubercolosis**

* Carry diphtheria gene

**Arcanobacterium**

* Colonizer + Pathogen
* T: Pen | Erythromycin

**Brevibacterium**

* Skin colonizer | Cheese-like odor in culture
* T: Vanco | Tetracycline | Gentamicin

**Rothia mucilaginosa**

* Major colonizer of oropharynx + UR
* Mucoid + Sticky | Esp to damaged heart valves
* T: Unpredictable | Need susceptibility testing first

**Tropheryma whippelii**

* Infects macrophage + ride it to tissues → persists
* Cannot be grown outside of host cell
* Clinical Implication: Whipple disease | GI disorder
  + Poor prognosis if untreated (fatal after 1 year)
* D: Intestinal Biopsy | PCR confirmation of DNA
* T: 2 weeks of Pen/Streptomycin + 1 year of oral trimethoprim-sulfamethoxazole

Bacteria → Gm+ → Pleomorphic → Propionibacterium

* Small | Non-motile | Normal flora on skin, eyes, oropharynx, female genital tract

**P. acnes**

* Clinical: Acne vulgaris
* Pathophysiology: Infects + Blocks sebaceous follicles → inflammatory lesion + scarring
* D: grows on most media
* T: Topical antibiotics | Benzyl Peroxidase | Hormonal treatment